

Appl. No. 10/809033
Reply to Office action of 3/7/06
Page 9

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the above amendments and the following remarks. Claim 1 is amended and is supported, for example, in Applicants' original disclosure at page 11, lines 22-35 and Comparative Examples 2-1 to 2-3. Claims 53-60 are added, and are supported, for example, at page 11, lines 22-35 and Comparative Examples 2-1 to 2-3. Claim 33 has been revised to depend upon new claim 55. Non-elected claims 47-52 are canceled without prejudice or disclaimer. No new matter has been added. Claims 1-46 and 53-60 are pending.

Claims 1-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunter (U.S. Patent No. 6,296,956). Applicants respectfully traverse this rejection.

Claim 1 is directed to a method of manufacturing a Group III nitride single crystal, having among other features, the step of crystallizing an aeriform substance that includes at least one of a hydride of the Group III element and a hydride of the Group III nitride. Further, by using a hydride as recited by claim 1, a product with improved thickness can be obtained. (Table 5.) In the Comparative examples 2-1 to 2-3, for example, crystal growth occurred in a hydrogen atmosphere without applying pressure. That is, a hydride of the Group III nitride crystal material was formed by heating a Group III nitride crystal material under atmospheric pressure in a hydrogen atmosphere. The comparative examples 2-1 to 2-3 illustrate unexpected results of improved thickness over other examples, such as Example 1-6, in which no hydrogen was used to form a hydride required by claim 1, and where the thickness was unmeasurable.

Hunter does not disclose or suggest the features of claim 1. Hunter discloses using an aluminum nitride as a source material. (See Col. 2, lines 54-67.) However, Hunter does not disclose crystallizing an aeriform substance that includes at least one of a hydride of the Group III element and a hydride of the Group III nitride. Furthermore, Hunter does not suggest using a hydride as required by claim 1, and thus would not expect to obtain improved thickness for a Group III nitride single crystal. For at least these reasons, Hunter does not disclose or suggest claim 1. Therefore, Hunter does not anticipate claim 1 and its dependent claims, and the claims are allowable.

Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Appl. No. 10/809033
Reply to Office action of 3/7/06
Page 10

Claims 1-5, 33, 45, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Showalter (U.S. Patent No. 6,770,135). Applicants respectfully traverse this rejection.

Claim 1 has been discussed. Showalter does not disclose or suggest the features of claim 1. As with Hunter, Showalter also discloses using aluminum nitride as a source material. (See Col. 13, lines 46-55.) However, Showalter does not disclose or suggest crystallizing an aeriform substance that includes at least one of a hydride of the Group III element and a hydride of the Group III nitride. Therefore, Showalter does not disclose or suggest the features of claim 1. For at least the foregoing, claim 1 and its dependent claims are not anticipated and are allowable.

Favorable reconsideration and withdrawal of the rejection are respectfully requested.

With regard to claims 53-60, claims 53-55 depend upon and further limit claim 1. Applicants respectfully submit that claims 53-55 are allowable for at least the same reasons specified with respect to claim 1. Claim 56 is directed to a method of manufacturing a Group III nitride where an aeriform substance is formed by evaporating the material for the Group III nitride in the presence of hydrogen. Claim 59 is directed to a method of manufacturing a Group III nitride single crystal that includes crystallizing an aeriform substance. The aeriform substance is selected from the group consisting of hydrides of Group III elements and hydrides of Group III nitrides, namely GaH_x , AlH_x , InH_x , GaN_xH , AlN_xH , and InN_xH . Applicants respectfully submit that the prior art does not teach or suggest claims 56 and 59 and their respective dependent claims.

Appl. No. 10/809033
Reply to Office action of 3/7/06
Page 11

In view of the above amendments and remarks, favorable reconsideration is respectfully requested and a Notice of Allowance is respectfully solicited. If any further questions arise regarding this communication, the Examiner is invited to contact the undersigned attorney.



Dated: June 7, 2006

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902-0902
Minneapolis, MN 55402-0902
(612) 455-3800

By: 

Douglas P. Mueller
Reg. No. 30,300
DPM/BAW/lad